

Claims

- [c1] An improved side airbag for enhancing thorax protection and displacing a vehicle occupant away from a door intrusion, comprising:
- an inflatable bag having a thorax-cushioning portion and a pelvis-pushing portion adjacent to said thorax-cushioning portion, said thorax-cushioning portion having a first predetermined stiffness for cushioning a thorax region of the vehicle occupant, said pelvis-pushing portion having a second predetermined stiffness for displacing the vehicle occupant away from the door intrusion;
- wherein said second predetermined stiffness is greater than said first predetermined stiffness.
- [c2] The improved side airbag as recited in claim 1 wherein said thorax-cushioning portion defines a first chamber of the improved side airbag for containing a first gas volume, said pelvis-pushing portion defines a second chamber of the improved side airbag for containing a second gas volume, said first gas volume and said second gas volume remaining separate and respectively within said first chamber and said second chamber.

- [c3] The improved side airbag of claim 2 wherein said second gas volume within said second chamber of said pelvis–pushing portion is more pressurized than said first gas volume within said first chamber of said thorax–cushioning portion.
- [c4] The improved side airbag of claim 3 wherein said second chamber is sized smaller than said first chamber.
- [c5] The improved side airbag of claim 3 wherein said thorax–cushioning portion and said pelvis–pushing portion have an inflator manifold coupled thereto, said inflator manifold including at least one first opening for supplying said first gas volume to said thorax–cushioning portion, said inflator manifold further including at least one second opening for supplying said second gas volume to said pelvis–pushing portion.
- [c6] The improved side airbag of claim 5 wherein said at least one second opening is sized larger than said at least one first opening.
- [c7] The improved side airbag of claim 5 wherein said at least one second opening is greater in quantity than said at least one first opening.
- [c8] An improved side airbag for enhancing thorax protection

and displacing a vehicle occupant away from a door intrusion, comprising:

an inflatable bag having at least one panel configured for defining a thorax-cushioning portion and a pelvis-pushing portion adjacent to said thorax-cushioning portion, said thorax-cushioning portion having a first predetermined stiffness for cushioning a thorax region of the vehicle occupant, said pelvis-pushing portion having a second predetermined stiffness for displacing the vehicle occupant away from the door intrusion; wherein said second predetermined stiffness is greater than said first predetermined stiffness.

[c9] The improved side airbag as recited in claim 7 wherein said at least one panel defines said thorax-cushioning portion having a first chamber for containing a first gas volume, said at least one panel defining said pelvis-pushing portion having a second chamber for containing a second gas volume, said first gas volume and said second gas volume remaining separate and respectively within said first chamber and said second chamber.

[c10] The improved side airbag of claim 9 wherein said second gas volume within said second chamber of said pelvis-pushing portion is more pressurized than said first gas volume within said first chamber of said thorax-cushioning portion.

- [c11] The improved side airbag of claim 10 wherein said second chamber is sized smaller than said first chamber.
- [c12] The improved side airbag of claim 10 wherein said thorax-cushioning portion and said pelvis-pushing portion have an inflator manifold coupled thereto, said inflator manifold including at least one first opening for supplying said first gas volume to said thorax-cushioning portion, said inflator manifold further including at least one second opening for supplying said second gas volume to said pelvis-pushing portion.
- [c13] The improved side airbag of claim 12 wherein said at least one second opening is sized larger than said at least one first opening.
- [c14] The improved side airbag of claim 12 wherein said at least one second opening is greater in quantity than said at least one first opening.
- [c15] An improved side airbag for enhancing thorax protection and displacing a vehicle occupant away from a door intrusion, comprising:
an inflatable bag having a first outer panel, a second outer panel coupled to said first outer panel and sized substantially similar to said first outer panel, and an inner panel attached to and in connection between said

first and second outer panels;
wherein said first outer panel, said second outer panel,
and said inner panel are configured for defining a tho-
rax-cushioning portion and a pelvis-pushing portion
that is adjacent to said thorax-cushioning portion;
wherein said thorax-cushioning portion has a first pre-
determined stiffness for cushioning a thorax region of
the vehicle occupant, said pelvis-pushing portion having
a second predetermined stiffness for displacing the ve-
hicle occupant away from the door intrusion;
wherein said second predetermined stiffness is greater
than said first predetermined stiffness.

[c16] The improved side airbag as recited in claim 15 wherein
said thorax-cushioning portion includes a first chamber
for containing a first gas volume, said pelvis-pushing
portion having a second chamber for containing a sec-
ond gas volume, said first gas volume and said second
gas volume remaining separate and respectively within
said first chamber and said second chamber.

[c17] The improved side airbag of claim 16 wherein said sec-
ond gas volume within said second chamber of said
pelvis-pushing portion is more pressurized than said
first gas volume within said first chamber of said thorax-
cushioning portion.

- [c18] The improved side airbag of claim 15 wherein said second chamber is sized smaller than said first chamber.
- [c19] The improved side airbag of claim 10 wherein said thorax-cushioning portion and said pelvis-pushing portion have an inflator manifold coupled thereto, said inflator manifold including at least one first opening for supplying said first gas volume to said thorax-cushioning portion, said inflator manifold further including at least one second opening for supplying said second gas volume to said pelvis-pushing portion, said at least one second opening being sized larger than said at least one first opening.
- [c20] The improved side airbag of claim 10 wherein said thorax-cushioning portion and said pelvis-pushing portion have a inflator manifold coupled thereto, said inflator manifold including at least one first opening for supplying said first gas volume to said thorax-cushioning portion, said inflator manifold further including at least one second opening for supplying said second gas volume to said pelvis-pushing portion, said at least one second opening being greater in quantity than said at least one first opening.